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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 1206013478-2342-02]

0648-XB140

Endangered and Threatened Wildlife; 90-Day Finding on a Petition to List the Queen Conch as Threatened or Endangered Under the Endangered Species Act

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce.

ACTION: Ninety-day petition finding, request for information, and initiation of status review.

SUMMARY: We, NMFS, announce a 90–day finding on a petition to list the queen conch (Strombus gigas) as threatened or endangered and designate critical habitat under the Endangered Species Act (ESA). We find that the petition and information in our files present substantial scientific or commercial information indicating that the petitioned action may be warranted. We will conduct a status review of the species to determine if the petitioned action is warranted. To ensure that the status review is comprehensive, we are soliciting scientific and commercial information regarding this species (see below).

DATES: Information and comments on the subject action must be received by [insert date 60 days after date of publication in the FEDERAL REGISTER].

ADDRESSES: You may submit information, identified by the code 0648-XB140, addressed to: Calusa Horn, Natural Resource Specialist, by any of the following methods:

- Electronic Submissions*:* Submit all electronic information via the Federal eRulemaking Portal http:// www.regulations.gov

- Facsimile (fax): 727-824-5309
- Mail: NMFS, Southeast Regional Office, 263 13th Avenue South, St. Petersburg, FL 33701
- Hand delivery: You may hand deliver written information to our office during normal business hours at the street address given above.

Instructions: All information received is a part of the public record and may be posted to http://www.regulations.gov without change. All personally identifiable information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information. We will accept anonymous submissions. Attachments to electronic comments will be accepted in Microsoft Word, Excel, Corel WordPerfect, or Adobe PDF file formats only.

FOR FURTHER INFORMATION CONTACT: Calusa Horn, NMFS, Southeast Region, (727) 824-5312; or Marta Nammack, NMFS, Office of Protected Resources, (301) 427-8469.

SUPPLEMENTARY INFORMATION: On February 27, 2012, we received a petition from the WildEarth Guardians to list queen conch (Strombus gigas) as threatened or endangered under the ESA. The petitioner also requested that we designate critical habitat. The petition states that the species is declining and threatened with extinction due to habitat degradation, specifically, water pollution and destruction of seagrass nursery habitat, overutilization resulting from commercial harvest, inadequacy of existing regulatory mechanisms, and other natural and manmade factors such as, biological vulnerability, human population growth, and synergistic effects. Copies of this petition are available from us (see ADDRESSES, above) or at http://sero.nmfs.noaa.gov/pr/ListingPetitions.htm.

ESA Statutory and Regulatory Provisions and Evaluation Framework

Section 4(b)(3)(A) of the ESA of 1973, as amended (U.S.C. 1531 et seq.), requires, to the maximum extent practicable, that within 90 days of receipt of a petition to list a species as threatened or endangered, the Secretary of Commerce make a finding on whether that petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted, and to promptly publish such finding in the Federal Register (16 U.S.C. 1533(b)(3)(A)). When we find that substantial scientific or commercial information in a petition indicates the petitioned action may be warranted (a "positive 90-day finding"), we are required to promptly commence a review of the status of the species concerned during which we will conduct a comprehensive review of the best available scientific and commercial information. In such cases, we are to conclude the review with a finding as to whether, in fact, the petitioned action is warranted within 12 months of receipt of the petition. Because the finding at the 12-month stage is based on a more thorough review of the available information, as compared to the narrow scope of review at the 90-day stage, a "may be warranted" finding does not prejudge the outcome of the status review.

Under the ESA, a listing determination may address a "species," which is defined to also include subspecies and, for any vertebrate species, any distinct population segment (DPS) that interbreeds when mature (16 U.S.C. 1532(16)). A joint NOAA-U.S. Fish and Wildlife Service (USFWS) policy clarifies the agencies' interpretation of the phrase "distinct population segment" for the purposes of listing, delisting, and reclassifying a species under the ESA ("DPS Policy"; 61 FR 4722; February 7, 1996). A species, subspecies, or DPS is "endangered" if it is in danger of extinction throughout all or a significant portion of its range, and "threatened" if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its

range (ESA sections 3(6) and 3(20), respectively; 16 U.S.C. 1532(6) and (20)). Pursuant to the ESA and our implementing regulations, we determine whether species are threatened or endangered because of any one or a combination of the following five section 4(a)(1) factors: the present or threatened destruction, modification, or curtailment of habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; inadequacy of existing regulatory mechanisms; and any other natural or manmade factors affecting the species' existence (16 U.S.C. 1533(a)(1), 50 CFR 424.11(c)).

ESA-implementing regulations issued jointly by NMFS and USFWS (50 CFR 424.14(b)) define "substantial information" in the context of reviewing a petition to list, delist, or reclassify a species as the amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted. In evaluating whether substantial information is contained in a petition, the Secretary must consider whether the petition: (1) clearly indicates the administrative measure recommended and gives the scientific and any common name of the species involved; (2) contains detailed narrative justification for the recommended measure, describing, based on available information, past and present numbers and distribution of the species involved and any threats faced by the species; (3) provides information regarding the status of the species over all or a significant portion of its range; and (4) is accompanied by the appropriate supporting documentation in the form of bibliographic references, reprints of pertinent publications, copies of reports or letters from authorities, and maps (50 CFR 424.14(b)(2)).

Court decisions clarify the appropriate scope and limitations of the Services' review of petitions at the 90-day finding stage, in making a determination whether a petitioned action "may be" warranted. As a general matter, these decisions hold that a petition need not establish a

"strong likelihood" or a "high probability" that a species is either threatened or endangered to support a positive 90-day finding.

We evaluate the petitioner's request based upon the information in the petition including its references, and the information readily available in our files. We do not conduct additional research, and we do not solicit information from parties outside the agency to help us in evaluating the petition. We will accept the petitioner's sources and characterizations of the information presented, if they appear to be based on accepted scientific principles, unless we have specific information in our files that indicates the petition's information is incorrect, unreliable, obsolete, or otherwise irrelevant to the requested action. Information that is susceptible to more than one interpretation or that is contradicted by other available information will not be dismissed at the 90-day finding stage, so long as it is reliable and a reasonable person would conclude it supports the petitioner's assertions. In other words, conclusive information indicating the species may meet the ESA's requirements for listing is not required to make a positive 90-day finding. We will not conclude that a lack of specific information alone negates a positive 90-day finding, if a reasonable person would conclude that the unknown information itself suggests an extinction risk of concern for the species at issue.

To make a 90-day finding on a petition to list a species, we evaluate whether the petition presents substantial scientific or commercial information indicating the subject species may be either threatened or endangered, as defined by the ESA. First, we evaluate whether the information presented in the petition, along with the information readily available in our files, indicates that the petitioned entity constitutes a "species" eligible for listing under the ESA. Next, we evaluate whether the information indicates that the species at issue faces extinction risk that is cause for concern; this may be indicated in information expressly discussing the species'

status and trends, or in information describing impacts and threats to the species. We evaluate any information on specific demographic factors pertinent to evaluating extinction risk for the species at issue (e.g., population abundance and trends, productivity, spatial structure, age structure, sex ratio, diversity, current and historical range, habitat integrity or fragmentation), and the potential contribution of identified demographic risks to extinction risk for the species. We then evaluate the potential links between these demographic risks and the causative impacts and threats identified in section 4(a)(1).

Information presented on impacts or threats should be specific to the species and should reasonably suggest that one or more of these factors may be operative threats that act or have acted on the species to the point that it may warrant protection under the ESA. Broad statements about generalized threats to the species, or identification of factors that could negatively impact a species, do not constitute substantial information that listing may be warranted. We look for information indicating that not only is the particular species exposed to a factor, but that the species may be responding in a negative fashion; then we assess the potential significance of that negative response.

Queen Conch Species Description

The queen conch (Strombus gigas) is a large gastropod mollusk belonging to the Strombidae family. The queen conch occurs throughout the Caribbean islands and into the Gulf of Mexico, south Florida, the Bahamas, and Bermuda, and the northern coasts of Central and South America (Davis, 2005). The known distribution of the queen conch includes 36 countries and dependent territories (CITES, 2003). The queen conch is the largest of the molluscan gastropods with adults averaging 7-9 inches (shell length) in size, but can grow to a maximum size of 12 inches (Davis, 2005; NMFS, 2011). Queen conch have an external, spiral-shaped shell

with a glossy pink or orange interior (Davis, 2005; NOAA, 2011). Queen conch are aged by shell length, which is measured from the tip of spire to the anterior edge of the shell. At approximately 3 years of age, the shell will begin to form a flared lip, which is used to indicate the animal's maturity (Theile, 2001; Davis, 2005). Reproductive maturity is related to the development of the flared lip (SEDAR ,2007). The conch shell and flared lip continue to grow as the animal ages (NMFS, 2011).

Queen conch are believed to live up to 30 years (McCarthy, 2007). Shell morphology is highly plastic and habitat appears to exert a strong influence on juvenile and adult morphology and growth (Martin-Mora et al., 1995; McCarthy, 2007). Queen conch graze on a variety of species of algae and seagrass detritus. Their preferred habitat types are seagrass meadows, coral rubble, algal plains, and sandy substrates (McCarthy, 2007; SADAR, 2007), but they are also encountered on rocky habitats and on coral reefs (Theile, 2001). Queen conch occur at depths ranging from a few centimeters to greater than 100 meters; however, densities decrease significantly below 30 meters due to light limitations that are not conducive for the growth of their food sources (i.e., algae and seagrass) (Theile, 2001; SEDAR, 2007). Adults are typically found at depths ranging from 10 to 30 meters (McCarthy, 2007).

Queen conch reach reproductive maturity, though highly variable, between 3 and 4 years of age or after the shell has developed the flared lip (Theile, 2001; Davis, 2005; McCarthy, 2007). It is widely believed that adult queen conch migrate to shallow waters to form large spawning aggregations. However, Stoner et al., (1992) and Glazer and Kidney (2004; as cited in CITES, 2008) suggest that queen conch migrate relatively little when habitats provide for a variety of their functions (e.g., forage, cover, reproduction). Queen conch spawn from March through October, with most activity occurring during the warmest water periods (i.e., July

through September). Fertilization is internal and females lay an average of nine egg masses per season; each mass contains approximately 400,000 eggs (Davis, 2005). Larvae hatch after a 3 to 5 day egg incubation period. Larvae are pelagic, drifting on surface currents for 2 to 3 weeks, depending on phytoplankton concentrations, temperature, and proximity to appropriate nursery habitat. Ocean currents and water circulation can carry larvae over significant distances and likely play an important role in recruitment and repopulation of depleted areas (Theile, 2001; Davis, 2005). It is generally believed that larvae select specific habitat types, preferring to settle in clean shallow coastal waters containing seagrass meadows and sandy substrate (CFMC, 1996; Theile, 2001; Davis, 2005), although juvenile queen conch have also been observed in a variety of habitat types (i.e., algae covered hard bottom, algae flats, deep banks, coral rubbles, and seagrass meadows) (Stoner, 2003; Davis, 2005). During their first year, larvae begin to metamorphose into the queen conch form (Theile, 2001; Davis, 2005).

Analysis of the Petition

We have determined, based on the information provided in the petition and readily available in our files, that the petition presented substantial scientific or commercial information indicating that the petitioned action may be warranted. The petition contains a detailed narrative justification for the recommended measure, species taxonomic description, geographic distribution, preferred habitat characteristics, population status and trends, and threats contributing to the species' decline, and it is accompanied by appropriate supporting documentation. Below is a synopsis of our analysis of the information provided in the petition and readily available in our files.

The petition states that the primary threat to the queen conch is overexploitation by fisheries. The queen conch is commercially harvested in 25 countries throughout the Caribbean

region (Acosta, 2006). Queen conch meat is mainly consumed as food, but is also used as bait. Queen conch shells are generally considered a by-product of the fisheries and are discarded at sea, though some are sold as jewelry or curios (NMFS, 2011a). The United States is the largest importer of queen conch from the Caribbean, importing approximately 78 percent of the queen conch meat in international trade (Davis, 2005), equaling approximately 2,000 to 2,500 tons of queen conch meat annually (Theile, 2002; CITES, 2005).

The petition asserts that queen conch annual landings have increased substantially in order to meet growing international demand. The petition references queen conch landings from several of the largest exporting countries in the Caribbean region, stating that Jamaica, Honduras, and the Dominican Republic each declare approximately 1,000 tons of queen conch meat landed annually; followed by the Bahamas and Turks and Caicos which land approximately 680 and 780 tons, respectively (Theile, 2002; as cited by the petition). For perspective, 4,500 tons of conch meat is equivalent to approximately 31 million individuals (CITES, 2005). The petition also claims that queen conch landings are "grossly underestimated" because landings data are limited and do not account for high levels of illegal and unreported harvest. Several citations caution that queen conch landings are likely greater than reported, referencing large scale foreign poaching and illegal trade (i.e., at sea transfer) by neighbouring territories and under-reported queen conch landings (Theile, 2001; CITES, 2005; Aiken et al., 2006; FAO, 2007)

The petitioner asserts that queen conch is being harvested at unsustainable levels, resulting in population declines, stock collapses, as well as recruitment and reproductive failure. In the 1980s, increased international demand and subsequent commercial exploitation resulted in several stocks being reduced to levels where the populations can no longer recover (Paris et al., 2008). The queen conch trade is suspected to be unsustainable in many Caribbean countries, and

illegal harvest, including fishing of the species in foreign waters and subsequent illegal international trade, is believed to be a common and widespread problem throughout the Caribbean region (Theile, 2001; Jesus-Navarrete, 2003; CITES 2003,2005; Aiken et al., 2006). The petition outlines specific population declines, stock collapses, and total or temporary closures of queen conch fisheries as a result of overharvest in Bermuda, Cuba, Colombia, Florida, Mexico, the Netherlands Antilles, the U.S. Virgin Islands, and Venezuela (CFMC, 1996; Theile, 2001; CITES, 2003). In some Caribbean countries, local queen conch consumption is more significant than the queen conch meat exports (CITES 2005; Erhardt and Valle-Esuivel, 2008). The CITES significant trade review suggested that population declines throughout the Caribbean are primarily the result of overfishing for domestic and international markets, lack of enforcement of regulations, and large scale poaching by foreigners (CITES, 2003, 2005). The review also found that intensive fishing pressure has led to continued population declines resulting in "densities so low that recruitment failure is a risk to local fisheries in parts of Belize, Colombia, the Dominican Republic, Haiti, Honduras, Panama, Puerto Rico, and the U.S. Virgin Islands" (CITES, 2003, 2005).

The petitioner also claims that the overfishing of queen conch populations has led to population densities so low that a mate finding Allee effect is preventing recruitment and prohibiting the species' ability to recover from overexploitation. The Allee effect occurs when population growth is limited by the reduced likelihood of finding a mate due to low population densities. In addition, the decrease in abundance of reproductively mature adults (spawning stock) can lead to reduced survival or production of eggs causing depensation issues. Animals, like the queen conch, that require close proximity for fertilization of eggs are particularly vulnerable to depensation problems (Stoner et al. 2012). Stoner and Ray-Culp (2000)

documented a mate-finding Allee effect in queen conch populations in the Bahamas, observing that mating behavior and egg-laying never occurred when densities were below 56 and 48 adults per hectare. Consistent with earlier studies, Stoner et al. (2012) reported that no mating was observed at densities less than 47 queen conch per hectare. Ehrhardt and Valle-Esquivel (2008, citing TRAFFIC, 2003) stated that the mean densities in several important queen conch fisheries in the Caribbean region were below levels at which depensation has been shown to occur in queen conch populations.

The information presented by the petitioner and information in our files indicates that queen conch populations in many Caribbean countries are declining or have declined as a result of overexploitation. In addition, some Caribbean countries have overexploited queen conch populations to such low levels that depensation is impacting recruitment and recovery. Taken in combination, this information suggests that overexploitation may pose an extinction risk of concern to the queen conch.

The petitioner also claims that water pollution in the form of heavy metals is a significant threat to queen conch populations. The petition discussed the threat of water pollution under "the present and threatened destruction, modification, or curtailment of habitat or range" listing factor. However, the available information suggests that water pollution is having a physiological impact on queen conch reproduction, which is an effect to the animal. Therefore, we believe that this threat is more appropriately addressed under the "other natural and manmade factors" listing factor.

The petition cites several peer-reviewed publications and research studies that show queen conch in south Florida are incapable of reproduction due to pollutants in their environment. In the Florida Keys, studies have confirmed a complete cessation of queen conch

spawning in nearshore areas, whereas offshore queen conch have normal reproductive development (Glazer and Quinteri, 1998; McCarthy et al. 2002; Delgado et al. 2004, 2007; Glazer et al. 2008; Spade et al. 2010). Spade et al. (2010) suggest that the reproductive failure of queen conch in nearshore environments in the Florida Keys is possibly a result of exposure to high levels of zinc and copper in their environments. Gastropod studies have linked heavy metal exposure, in particular exposure to zinc and copper, to reduced reproductive output which is usually measured in terms of egg laying (Glazer et al. 2008; Spade et al. 2010). In the Florida Keys, the gonads of nearshore female conch were documented by Delgado et al. (2004) to be in worse condition than those of males; Spade et al. (2010) also documented a premature regression of male testis and a reduction in testis development in nearshore male queen conch. Translocation studies conducted in the Florida Keys also found that nearshore queen conch failed to develop adequate gonad tissue, but gonads developed within 3 months once the animals were relocated to offshore environments; conversely, gonad function ceased when offshore queen conch were relocated into nearshore environments (McCarthy et al. 2002; Glazer et al. 2008; Spade et al. 2010). A Florida Fish and Wildlife Conservation Commission and Environmental Protection Agency report (Glazer et al. 2008) on the anthropogenic effects to queen conch reproduction in south Florida showed high concentrations of zinc in the digestive gland and gonad tissue of nearshore queen conch. The report stated that the digestive glands of reproductively healthy offshore queen conch had 70ng/mg of zinc, whereas the non-reproductive nearshore queen conch had 1000ng/mg of zinc in their digestive glands. In gastropods the digestive gland is adjacent to the gonad and is believed to be a site of metal accumulation and detoxification (Spade et al. 2010).

Delgado et al. (2007) suggest that exposure to chemicals (i.e., naled and permathrin) commonly used in mosquito control pesticides in south Florida may have several sub-lethal and chronic effects on critical early life stages of queen conch. The majority of queen conch embryos exposed to these chemicals during this study were deformed in a manner that would limit their ability to survive in the wild. Exposure to these chemicals likely increases the risk of predation upon queen conch larvae. Delgado et al. (2007) found that exposed larvae were slow growing which would require larvae to remain adrift in the water column for an extended period of time before they reached competency (i.e., recruitment size), increasing their chance of being predated upon. In addition, settlement stage larvae exposed to these chemicals received a false metamorphic cue which forced larvae to undergo metamorphosis prior to competence, decreasing their chances of survival (Delgado et al. 2007; Glazier et al. 2008).

The literature in the petition and information available in our files suggests that water pollution in south Florida is significantly impacting queen conch physiology and is affecting the population's growth and impeding the recovery of the historically overfished populations. The information provided by the petitioner and in our files is limited to the south Florida populations. We do not have information regarding the occurrence of this threat in other areas of the species range. However, it is possible that Caribbean populations may be experiencing similar physiological effects resulting from water pollution. Based on the information available to us at this time, we believe water pollution may pose a significant risk to the species if it is occurring elsewhere.

In addition to the information on overutilization and water pollution, the petitioner also provided information on the present and threatened destruction, modification, or curtailment of seagrass nursery habitat, the inadequacy if existing regulatory mechanisms, and other natural and

manmade factors affecting the species existence. Because we have determined that the information provided on overutilization and other natural or manmade factors presents substantial information indicating the petitioned action may be warranted, we are not conducting a detailed analysis of this other information here.

Petition Finding

We have determined after reviewing the information contained in the petition, as well as information readily available in our files, that there is substantial information indicating that the petitioned action may be warranted, based on the threats of overutilization for commercial, recreational, scientific or education purposes and other natural or manmade factors. Because we have found that substantial information was presented on the above factors, we will commence a status review of the species. During our status review, we will fully address all five of the factors set out in section 4(a)(1) of the ESA. At the conclusion of the status review, we will determine whether the petitioned action is warranted.

Information Solicited

As required by section 4(b)(3)(B) of the ESA and NMFS' implementing regulations (50 CFR 424.14(b)(2)), we are to commence a review of the status of the species and make a determination within 12 months of receiving the petition as to whether the petitioned action is warranted. We intend that any final action resulting from this review be as accurate and as effective as possible. Therefore, we open a 60-day public comment period to solicit information from the public, government agencies, the scientific community, industry, and any other interested parties on the status the queen conch throughout its range including: (1) historical and current distribution and abundance of this species throughout its range; (2) historical and current population trends; (3) biological information (life history, genetics, population connectivity,

etc.); (4) landings and trade data; (5) management, regulatory, and enforcement information; (6) any current or planned activities that may adversely impact the species; and (7) ongoing or planned efforts to protect and restore the species and their habitats. We request that all information be accompanied by: (1) supporting documentation such as maps, bibliographic references, or reprints of pertinent publications; and (2) the submitter's name, address, and any association, institution, or business that the person represents. Section 4(b)(1)(A) of the ESA and NMFS' implementing regulations (50 CFR 424.11(b)) require that a listing determination be based solely on the basis of the best scientific and commercial data, without consideration of possible economic or other impacts of the determination. During the 60-day public comment period we are seeking information related only to the status of the queen conch throughout its range.

Peer Review

On July 1, 1994, NMFS, jointly with the U.S. Fish and Wildlife Service, published a series of policies regarding listings under the ESA, including a policy for peer review of scientific data (59 FR 34270). The intent of the peer review policy is to ensure listings are based on the best scientific and commercial data available. The Office of Management and Budget issued its Final Information Quality Bulletin for Peer Review on December 16, 2004. The Bulletin went into effect June 16, 2005, and generally requires that all "influential scientific information" and "highly influential scientific information" disseminated on or after that date be peer reviewed. Because the information used to evaluate this petition may be considered "influential scientific information," we solicit the names of recognized experts in the field that could take part in the peer review process for this status review (see ADDRESSES). Independent peer reviewers will be selected from the academic and scientific community, tribal

and other Native American groups, Federal and state agencies, the private sector, and public interest groups.

References Cited

A complete list of references is available upon request from the Southeast Regional Office, Protected Resource Division (see ADDRESSES).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.).

Dated: August 21, 2012.

Alan D. Risenhoover,
Director, Office of Sustainable Fisheries,
performing the functions and duties of the
Deputy Assistant Administrator for Regulatory Programs,
National Marine Fisheries Service.

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